

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1, 13, 15, 27, and 29 have been amended herein. Claims 1-4, 9-13, 15-18, 23-27, and 29 are pending and under consideration.

REJECTION OF CLAIMS 1-4, 9-13, 15-18, 23-27 and 29-30 UNDER 35 U.S.C. § 103

Independent claims 1, 13, 15, 27, and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Weber, U.S. Patent No. 5,937,174, in view of Hauck, U.S. Patent Pub. No. 2003/0158999.

For example, the cited prior art, alone or in combination, does not discuss or suggest:

data transfer control means for controlling data transfer from said bridge module to said second modules so that, after said data is transferred to the two second modules corresponding to said two transferred-to addresses, said data is written at said written-in address in said cache memory of each of the two second modules concurrently,

as recited in amended claim 1. The apparatus of claim 1 provides for data writing into the master area concurrently with data writing into the mirror area associated with the master area. As such, a single forwarding data and address information that have been received from the host (claimed external apparatus) writes data into different areas on caches at the same time, thereby providing a more efficient manner of data forwarding. Thus, claim 1 provides for performing mirroring by concurrently writing the same data into different areas of the cache memories of a plurality of management modules (claimed second modules).

In other words, a management module manages an address of a mirror area on the cache memory of another management module, which has a mirror relationship with the management module in question, in association with the address of the cache area (i.e., the master area) of the management module in question. The host interface module (the first module) merely acquires single cache information (association information) from the management means of a single management module (second module), so that, based on the cache information, a single piece of addressing information is generated and acquired. The single piece of addressing information designates at least two areas, to which data is to be written, in the plurality of management modules (second modules) that are set in mirror relation to each other. Therefore, a single forwarding data, which has been received from the host (the

external apparatus), and the addressing information to the bridge module writes the data into at least two different areas on caches at the same time, which results in efficient data forwarding.

Hauck, as indicated by the Examiner, relates to maintaining cache coherency. To that end, Hauck, at paragraph [0040] discloses:

The first controller 210 accepts the data from the host write 260 (Host Write #1), placing the data in a cache line 230, and then determines where to mirror the data on the second controller 220; Third, a controller-to-controller mirror operation 290 commences; When the mirror operation completes, the first controller 210 can give a status to the host system (not shown) indicating that the write has completed", and the paragraphs 0046-0047 disclose that "a second host write 440, Host Write #2, is sent from the host 140 (see FIG. 1) to the second controller 420; The second controller 420 finds a cache line 470 on the second controller 420 to place the second host write 440; (omitting)...After the completed transfer of the host write 440, the second controller determines which mirror cache line 460 on the first controller 410 to copy the data (second host write) into; Once a determination is made, the data is mirrored 465 from the second controller's cache line 470 to a mirror cache line 460 on the first controller.

However, the above disclosure of Hauck is totally silent about data writing into a number of cache areas in respective different management modules (second modules) at the same time. In fact, in contrast to claim 1, Hauck actually carries out data mirroring into one cache line after the completion of writing the same data into the other cache line and not concurrently.

Hauck does not teach or suggest a technique of concurrently writing data into a number of different areas and does not disclose a configuration of addressing information (a single piece of addressing information that designates two areas to which data is to be written) recited in claim 1, for example. Weber fails to make up for these deficiencies in Hauck.

None of the cited prior art discloses these features of claim 1, for example, and the remaining independent claims contain similar features, such that claims 1, 13, 15, 27, and 29 each patentably distinguish over the cited combination of references.

A withdrawal of these § 103(a) rejections and favorable reconsideration of claims 1, 13, 15, 27, and 29 are respectfully requested.

Claims 2-4, 9-12, 16-18, and 23-26 were rejected under 35 U.S.C. § 103(a) as being obvious over the combined teachings of Weber, Hauck, and Avraham and in further view of U.S. Patent Application Publication No. US 2002/0016898 by Hashimoto et al.

Claims 2-4 and 9-12 depend either directly or indirectly from claim 1 and include all the

features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claims 2-4 and 9-12 patentably distinguish over the prior art.

Claims 16-18 and 23-26 depend either directly or indirectly from claim 15 and include all the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claims 16-18 and 23-26 patentably distinguish over the prior art.

INTERVIEW REQUEST

Applicants respectfully request a telephone interview between Applicants' representative, the undersigned, and the Examiner at the Examiner's earliest convenience, in order to discuss the arguments presented in the current response. The undersigned can be reached by telephone directly at (202) 454-1583.

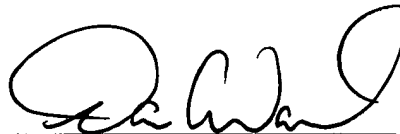
SUMMARY

It is submitted that the claims continue to be allowable. It is further submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

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